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BA WTR  
WR ND  
Mail Stop 60189

MAR 11 2008

Memorandum

To: Project Leader, Tewaukon National Wildlife Refuge Complex

From: Chief, Division of Water Resources

Subject: 2007-2008 Annual Water Use Report/Management Plan

The subject reports for Tewaukon and Storm Lake National Wildlife Refuges have been reviewed and approved as submitted. The 2008 Water Management Plan for Tewaukon National Wildlife Refuge will be forwarded to the North Dakota State Engineer's Office as the 2008 State Operation Plan.

Please make the following changes to the short form submitted for Storm Lake National Wildlife Refuge for next year's report. The Declaration of Filing date is September 1, 1934 and the figures for storage and seasonal use are incorrect. They should be corrected to reflect storage of 729 acre-feet and seasonal use of 516 acre-feet.

Attached is the signed approval page for your files. Thank you for your timely submission of the report

S/ MEGAN ESTEP

Attachment

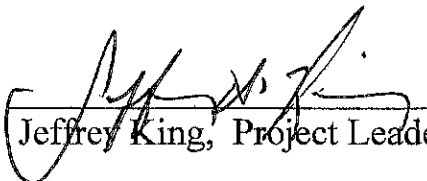
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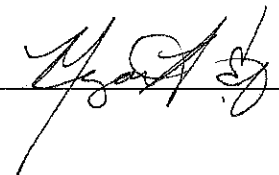
## Signature Page

### 2007 Water Use Report 2008 Water Management Plan

Submitted By:  Date: 2/29/08  
Jeffrey King, Project Leader

Reviewed By:  Date: 3/6/08

Approved By:  Date: 3/6/08

Concurrence:  3/11/08



# Tewaukon National Wildlife Refuge Complex

## 2007 Water Use Report

### 2008 Water Management Plan

#### REFUGE MANAGED WETLANDS

CCP Refuge 1.5 Objective: Annually provide for approximately 20% in dry, 20% in shallow, 20% mid-depth, and 20% open water wetland conditions on Refuge managed wetlands and manage remaining 20% as a reserve to adjust to local climatic and habitat conditions.

**1. List of Water Rights**

See Appendix 1.

**2. Water Use - 2007**

Month	<u>Temperatures</u>		<u>Precipitation</u>	
	Low (Average)	High (Average)	Rain (inches)	Snow (inches)
January	3	23	-	2.7
February	-1	16	-	10.9
March	23	42	-	9.4
April	32	52/3	3.17	3.16
May	49	72	4.16	-
June	60	79	7.85	-
July	63	85	1.82	-
August	56	78	1.79	-
September	47	73	2.28	-
October	38	61	1.39	-
November	22	40	-	0.8
December	0	19	-	19.3
<b>Totals:</b>	N/A	N/A	22.46	46.26

Information taken from ND Agricultural Weather Network website  
<http://ndawn.ndsu.nodak.edu/>

**Pool 1 (Lake Tewaukon):** Pool filled to 1148.63 on March 13<sup>th</sup>. Heavy rains and run-off pushed the lake to a high of 1150 on May 10<sup>th</sup>. Freeze up at 1148 in late December.

**Parker Bay (east end of Lake Tewaukon):** Boards remained in place to maintain a three foot water depth. Freeze up elevation was 1148.

**Pool 2 (Cutler Marsh):** Pool 2 peaked on May 9<sup>th</sup> at 1154.92 and then attempted to fill Pool 2A. The water elevations were difficult to control due to high run-offs from the south of the Refuge.

**Pool 2A:** Pool 2A was filled from Pool 2 to 1154.05 on April 3<sup>rd</sup>. Freeze-up was 1151.

**Pool 3 (Maka Pool):** Elevation peaked at 1158.40 on May 8<sup>th</sup>. Boards pulled to draw pool down to facilitate repair work on Nickeson dike.

**Pool 3A:** Pool followed Pool 3 elevations.

**Nickeson Bottoms:** This pool only received local inflows. We tried to drop water levels through evaporation. We attempted to remove water from pool from April into the fall. Freeze up level was approximately 1154.

**Pool 4 (River Pool):** Pool 4 filled to operating level on April 2<sup>nd</sup> of 1158.85. This elevation kept water off of neighboring farmer's field. The water level was difficult to maintain due to high inflows. Water overtopped the dike on May 8<sup>th</sup> through May 10<sup>th</sup>. Freeze up at 1155.94.

**Pool 5:** Pool filled to 1162 on May 13<sup>th</sup>. Freeze up occurred at 1164.

**Pool 5A:** Structure has a hole in the structure. Freeze up elevation 1163.4.

**Pool 6:** Structure and dike breached. Pool went dry at freeze up at 1163.

**Pool 7:** Tried to maintain water level at 1172 all year. The pool peaked at 1172.18 on March 19<sup>th</sup>. Freeze-up was at 1171.30.

**Pool 7A:** Pool filled to 1178 on April 2<sup>nd</sup> and it dropped later in the summer to 1177 to preserve access road. Pool froze up dry at 1175.75.

**Pool 8 (Hepi Lake):** Pool 8 peaked on April 2<sup>nd</sup> at approximately 1178. We filled pool 7, 7A, 5A, and 5. Boards pulled on April 2<sup>nd</sup>. Freeze up was at 1172.

**Pool 9:** Inflows from Pool 8 filled the pool to approximately 1174. At that elevation water outflows into Pool 4. Freeze up at approximately 1166.

**Pool 10:** Pool began year at 1174 there was no flow into this pool except local precipitation. Freeze up occurred at approximately 1174

**Pool 11 (West White Lake):** This pool peaked at 1153.30 on June 4<sup>th</sup> from high amounts of precipitation and local run-off. Water drained through 11 into Pool 12 into Pool 2 and into the Wild Rice River. Freeze up occurred at 1147.75

**Pool 12 (East White Lake):** Pool 12 received inflows from Pool 11 and drained into Pool 2 to the Wild Rice River. By freeze up, Pool 12 was at approximately 1147.75.

**Pool 13 (Mann Lake):** Local runoff from the high amount of precipitation came into Pool 13. Evaporation had lowered it to approximately 1206 at freeze up.

**Pool 14 (Sprague Lake):** The bank overtopped on May 6<sup>th</sup> at elevation 1216.25. The lake peaked at 1217.50 on May 7<sup>th</sup>. Lake was lowered to accommodate dike rehab to approximately 1212.1 on September 4, 2007. Freeze up at approximately 1212.25.

**Pool 16 (Horseshoe Slough Group):**

Only local inflows – keep out water from Wild Rice River

Pool A – Freeze up occurred at 1207.20

Pool B – Freeze up at 1207.20

Pool C – Freeze up at 1207.20

B West – Freeze up at 1207.20

B North – Freeze up at 1207

C North – Freeze up at 1206

C South and C East – Freeze up at 1207

**3. Impoundment Data**

Please see the attached chart (Appendix 2) for capacities for each pool at various elevations. No formal inflow/outflow records were maintained.

**4. 2008 Plans**

**CCP Refuge 1.5 and R 4.2 Objectives**

Plans for the 2008 season will depend on the timing of two construction projects (Lake Tewaukon bank stabilization and Pool 3A). The strategies below are based on starting the Lake Tewaukon construction project in mid June and then followed by the Pool 3A project. If the Pool 3A project has to be worked on first then plans will be adjusted to hold water in Pools 7, 7A, 8 and 14 to get enough water to re-fill Lake Tewaukon. As always, plans may have to be adjusted if the timing, order or large precipitation events occur.

**Pool 1 (Lake Tewaukon):** Draw lake down two feet to facilitate bank repair in mid-June. After repair fill lake as close to 1148 as possible.

**Parker Bay (east end of Lake Tewaukon):** Maintain 2-3 feet of depth. No inflows to encourage emergent and submergent vegetation.

**Pool 2 (Cutler Marsh):** Hold water in the spring at 1154 to provide water to help re-fill the lake for fishery in Lake Tewaukon. After project is completed drop pool to 1148.

**Pool 2A:** Hold water in the spring at 1154 to provide water to help re-fill the lake for fishery in Lake Tewaukon. After project is completed maintain pool at 1154.

**Pool 3 (Maka Pool):** Hold water in the spring at 1159 to provide water to help re-fill the lake for fishery in Lake Tewaukon. After project is completed drop pool to 1151 to facilitate dike repair on 3A.

**Pool 3A:** Hold water in the spring at 1158 to provide water to help re-fill the lake for fishery in Lake Tewaukon. After project is completed drop pool to 1152 to facilitate dike repair on 3A.

**Nickeson Bottoms:** Continue to drop water through evaporation to promote emergent vegetation.

**Pool 4 (River Pool):** Maintain pool at 1158.85 to keep water off of upstream landowner's property and to help re-fill the lake for fishery in Lake Tewaukon. Lower pool to an elevation of 1155 to help re-fill the lake for fishery in Lake Tewaukon.

**Pool 5:** Maintain elevation at 1164.

**Pool 5A:** Maintain water at 3-4 feet (elevation 1164) in conjunction with Pool 5.

**Pool 6:** Dike is currently breached. We will be repairing in 2008. Pool will be filled if possible in 2009

**Pool 7:** Maintain pool at 1172.

**Pool 7A:** Maintain pool at 1175.

**Pool 8 (Hepi Lake):** Maintain pool at 1172 or below to encourage vegetative growth.

**Pool 9:** Maintain a 2 - 3 foot level in this pool (no greater than 1164.5) to allow for vegetative growth. Repair work of inlet will be attempted if the level goes below 1164.5.

**Pool 10:** No inflows. Maintain an elevation of 1172.25 to encourage vegetation growth.

**Pool 11 (West White Lake):** Allow water levels to drop to promote emergent vegetation growth, no inflows.

**Pool 12 (East White Lake):** Allow this pool to drop as low as possible through evaporation and restricting inflows.

**Pool 13 (Mann Lake):** This pool will be allowed to dry up to encourage emergent vegetation. No inflows.

**Pool 14 (Sprague Lake):** Maintain pool level at 1214.25

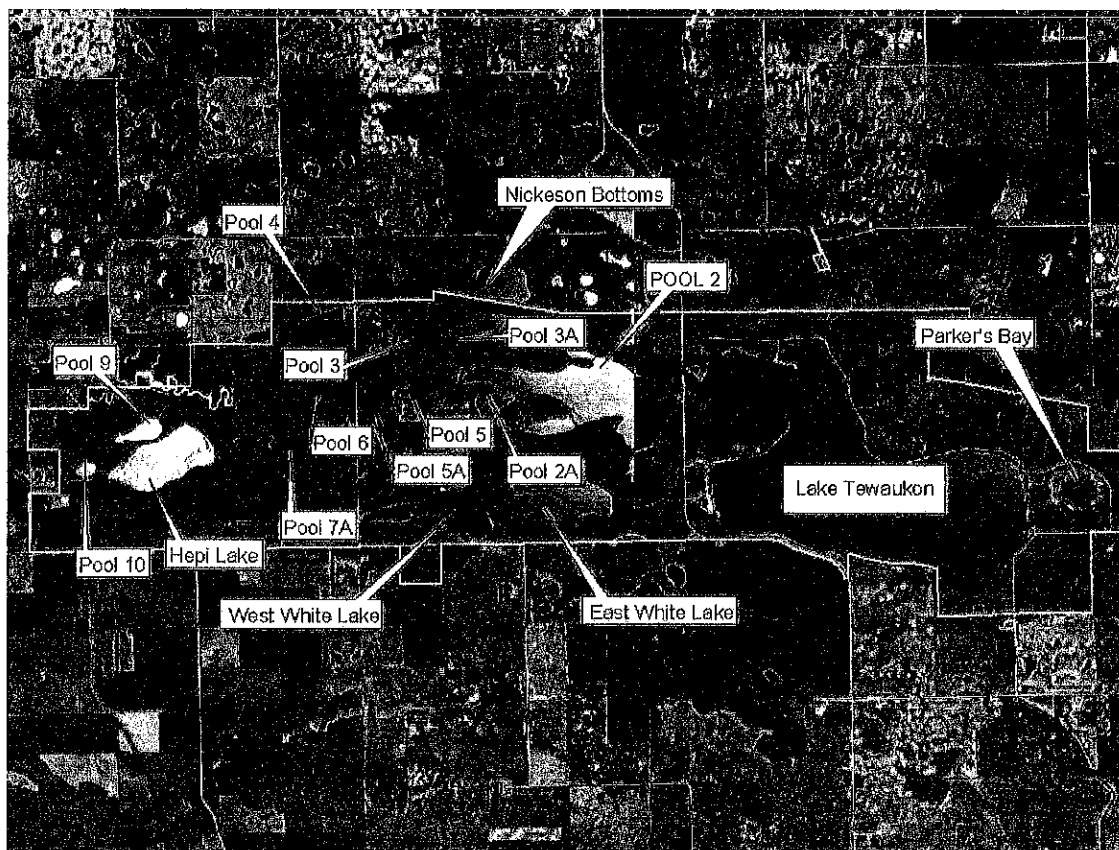
**Pool 16 (Horseshoe Slough):** Water levels in these pools will be allowed to continue to drop to reestablish vegetation and dry out the pools. No inflows.

## **5. Location Map**

See attached Refuge map (Figure 1 and 2) with all the management pools delineated.



**Figure 1: Tewaukon Unit Managed Wetlands**



**Figure 2: Sprague Lake Unit Managed Wetlands**



# Appendix 1

## List of Water Rights

**Water Right Filing No. 57:** Declaration of Filing dated September 1, 1934 claimed 104 surface acres, for 397 acre-feet storage and 312 acre-feet seasonal use for Clouds Lake (Pool 8) now called Hepi Lake from unnamed tributary to Wild Rice River. Listed on the same sheet as Lake Tewaukon/White Lake, as per RO(EN) Marshall Fox's 11-14-83 memo. Water use in pools 5 through 10 is covered under this right, with Hepi Lake to be drawn down to fill these pools.

**Water Right Filing No. 64:** Declaration of Filing dated September 1, 1934, for Lake Tewaukon and East and West White Lake (including Cutler Marsh), 1417 surface acres, for 7198 acre-feet storage, 4251 acre-feet seasonal from Wild Rice River and unnamed tributary.

**Permit #1261:** 4852 acre-feet storage and 2287 acre-feet seasonal use, for a total of 7139 acre-feet from the Wild Rice River for fish and wildlife use. This permit covers additional storage and seasonal use in Lake Tewaukon, Cutlers Marsh and West White Lake; 409 acre-feet seasonal use to replace water to be diverted from the watershed by Sargent County Water Conservation District project; and total storage and seasonal use for Pools 3 and 4. Priority date December 28, 1964.

**Tewaukon NWR #1262:** 1,130 acre-feet yearly (635 acre-feet storage and 495 acre-feet seasonal use) for Sprague Lake, dated December 28, 1964, diversion from an unnamed creek in the SE1/4 NW1/4, Sec. 2.

**Tewaukon NWR #1263:** 686 acre-feet yearly for Mann Lake (total of 236 acre-feet comprised of 107 acre-feet storage and 129 acre-feet seasonal use) and Horseshoe Slough (total of 450 acre-feet comprised of 270 acre-feet storage and 180 acre-feet seasonal use) dated December 28, 1964, diversion from the Wild Rice River.

**Tewaukon NWR #3816 Nickeson Tract:** 571 acre-feet (474 acre-feet storage, 97 acre-feet annual use) for the Nickeson Bottoms, a tract jointly owned by the ND Game and Fish Department, US Bureau of Reclamation and US Fish and Wildlife Service (FWS). Diversion is from the Wild Rice River, W 1/2 Section 27, T. 130 N., LTL, R. 54 W. Priority date August 15, 1985. Received perfected water permit on August 14, 1997. Recorded in the Register of Deeds, Sargent County on March 3, 1998.

In December, the Service submitted an application for prescriptive water rights pursuant to the provisions of State Senate Bill No. 2182 for 859 acre feet.

## Appendix 2

### Pools, Elevations and Acres

Pool No. & Name	January 1, 2007			December 31, 2007		
	Elevation	Surface Acres *	Volume (acre ft.)*	Elevation	Surface Acres *	Volume (acre ft.) *
Pool 1 - Tewaukon	1147.68	1056	8036	1148.0	1060	8375
- Parker's Bay	1147.68			1148.0	83	285
Pool 2 - Cutler's Marsh	1147.30	149	267	1149.50	239	587
Pool 2A	Dry	0	0	1151.0	21	23
Pool 3 - Maka Pool	1150.00			1151.50	39	86
Pool 3A	1150.75	0	0	1151.50	0	0
Nickeson Bottoms	1154.0	-	-	1154.0	-	-
Pool 4 - River Pool	1155.9	25	30	1155.94	25	31
Pool 5	1159.5	3	5	1163.4	5	15
Pool 5A	1159.7	0	0	1163.4	8	11
Pool 6	1163.0	0	0	1163.0	0	0
Pool 7	1169.78	3	2	1171.3	11	12
Pool 7A	1172.0	0	0	1175.75	71	66
Pool 8 - Hepi Lake	1172.0	86	174	1172.0	86	174
Pool 9	1164.0	9	15	1166.0	11	35
Pool 10	1174.0	6	12	1174.0	6	12
Pool 11 - West White Lake	1147.0	26	23	1147.75	38	47
Pool 12 - East White Lake	1147.0	98	389	1147.75	100	464
Pool 13 - Mann Lake	1205.0	42	75	1206.0	44	118
Pool 14 - Sprague Lake	1212.50	187	1343	1212.25	186	1296
Pool 16 - Horseshoe Slough						
- Pool 1 (A Pool)	1205.86	13	8	1207.20	46	48
- Pool 2 (B Pool)	1206.05	45	122	1207.20	51	177
- Pool 3 (C Pool)	1205.86	10	29	1207.20	12	43
- Pool 4 (B West)	1206.0	45	115	1207.20	53	173
- Pool 5 (B North)	1206.0	23	32	1207.20	33	66
- Pool 6 (C North)	1206.0	4	1	1207.0	9	7
- Pool 7 (C South & C East)	1208.0	26	75	1207.0	22	51

# WATER USE REPORT/MANAGEMENT PLAN SHORT FORM

Storm Lake NWR, Sargent County  
Station Name

**Summer 2004**  
Date of Inspection

Declaration of Filing: 8/30/1937

Drainage ditch (legal) \_\_\_\_\_

Water Right No.

**Sources(s)**

Several

(522 acre-feet storage)

(900 acre-feet seasonal)

Means of Diversion      Uncontrolled

Rate	Unknown
10%	100
15%	150
20%	200
25%	250
30%	300
35%	350
40%	400
45%	450
50%	500
55%	550
60%	600
65%	650
70%	700
75%	750
80%	800
85%	850
90%	900
95%	950
100%	1000

Water Diverted: Yes No ☒ X

Water Level est 654 acre-feet  
(Elevation or Est. Storage Amount)

\* Impoundment(s): Yes No ☒ X

\* Well(s)

Free Flowing      none      gpm

Pumped gpm

### Surface irrigation

(Crop)

Fish & Wildlife      X      virtually no public use

Stock

**Overall Climatic Conditions:** Even with heavy rains in June 2007, water did not run over land into the Golf Course and the town of Milnor.

**Condition of Facilities:** A diversion dam at the head of the feed ditch serving Storm Lake washed out well before 1976. The town dug a ditch beside the existing structure to allow for flood waters to move out of the town. At the end of 1997 the town placed a culvert with flap gate at an agreed elevation by a special use permit with the Refuge manager. The culvert is well above the existing structure and will allow flood waters to move out without impacting the water right. The ditch through the golf course was also cleaned in 1997 through a special use permit to facilitate removal of flood waters. At that time the Golf Course placed two new bridges on the fee title property without notification of the Refuge. An agreement with the Service was signed to mitigate the mowing of the fee title property with no mow areas along the golf course edges was signed in 1999. In 2006 an agreement between the US Fish & Wildlife Service and the city of Milnor was signed to lower an existing culvert. The culvert maintains the lake elevation and lowered the management level in Storm Lake by one foot (from 5 to 4 feet).

**Proposed Water Program:** No water management capability is present. Water runs down the ditch into the lake to an unknown degree each spring. Water did fill Storm Lake in 1993. High waters and overland flooding have resulted in the feeder ditch becoming an outlet for Storm Lake water into the legal drain.

**Comments:** The lake serves as a waterfowl loafing site by Canada geese, canvasbacks, redheads, lesser scaup, mallards, teal, gadwalls during low water years. Water levels fluctuate without management. If active management was initiated, some degree of improvement might be gained by a cycle of draw down management. It is questionable if the benefits would be worth the costs. The Golf Course Association of Milnor, which at one time requested lake water to irrigate portions of the Storm Lake Golf Course, has since found a well water source. The Association was granted a conditional water right, junior to that of the Service.